

[0042] FIGS. 15A-15C illustrate a rotating sequence, in accordance with one embodiment of the present invention.

[0043] FIG. 16 is a diagram of a GUI operational method, in accordance with one embodiment of the present invention.

[0044] FIGS. 17A-17E illustrate a floating control sequence, in accordance with one embodiment of the present invention.

[0045] FIG. 18 is a diagram of a GUI operational method, in accordance with one embodiment of the present invention.

[0046] FIGS. 19A-19D illustrate a zooming target sequence, in accordance with one embodiment of the present invention.

[0047] FIG. 20 is a diagram of a GUI operational method, in accordance with one embodiment of the present invention.

[0048] FIGS. 21A-21D illustrate a page turning sequence, in accordance with one embodiment of the present invention.

[0049] FIG. 22 is a diagram of a GUI operational method, in accordance with one embodiment of the present invention.

[0050] FIGS. 23A-23D illustrate an inertia sequence, in accordance with one embodiment of the present invention.

[0051] FIG. 24 is a diagram of a GUI operational method, in accordance with one embodiment of the present invention.

[0052] FIGS. 25A-25D illustrates a keyboard sequence, in accordance with one embodiment of the present invention.

[0053] FIG. 26 is a diagram of a GUI operational method, in accordance with one embodiment of the present invention.

[0054] FIGS. 27A-27D illustrates a scroll wheel sequence, in accordance with one embodiment of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

[0055] The invention generally pertains to gestures and methods of implementing gestures with touch sensitive devices. Examples of touch sensitive devices include touch screens and touch pads. One aspect of the invention relates to recognizing at least two simultaneously occurring gestures. Another aspect of the invention relates to displaying a graphical image and linking different touches that occur to the graphical image. Another aspect of the invention relates to immediately recognizing gestures so that actions associated with the gestures can be implemented at the same time. Another aspect of the invention relates to changing a displayed image based on and in unison with a gestural input, i.e., the displayed image continuously changes with changes in the gestural input such that the displayed image continuously follows the gestural input. Another aspect of the invention relates to implementing an input mode based on the number of fingers (or other object) in contact with the input device. Another aspect of the invention relates to providing region sensitivity where gestures mean different things when implemented over different areas of the input device. Another aspect of the invention relates to changing an input while making continuous contact with the touch sensitive surface of the touch sensitive device.

[0056] These and other aspects of the invention are discussed below with reference to FIGS. 1-27. However, those skilled in the art will readily appreciate that the detailed description given herein with respect to these figures is for explanatory purposes as the invention extends beyond these limited embodiments.

[0057] FIG. 1 is a block diagram of an exemplary computer system 50, in accordance with one embodiment of the present invention. The computer system 50 may correspond to a personal computer system, such as a desktops, laptops, tablets or handheld computer. The computer system may also corre-

spond to a computing device, such as a cell phone, PDA, dedicated media player, consumer electronic device, and the like.

[0058] The exemplary computer system 50 shown in FIG. 1 includes a processor 56 configured to execute instructions and to carry out operations associated with the computer system 50. For example, using instructions retrieved for example from memory, the processor 56 may control the reception and manipulation of input and output data between components of the computing system 50. The processor 56 can be implemented on a single-chip, multiple chips or multiple electrical components. For example, various architectures can be used for the processor 56, including dedicated or embedded processor, single purpose processor, controller, ASIC, and so forth.

[0059] In most cases, the processor 56 together with an operating system operates to execute computer code and produce and use data. Operating systems are generally well known and will not be described in greater detail. By way of example, the operating system may correspond to OS/2, DOS, Unix, Linux, Palm OS, and the like. The operating system can also be a special purpose operating system, such as may be used for limited purpose appliance-type computing devices. The operating system, other computer code and data may reside within a memory block 58 that is operatively coupled to the processor 56. Memory block 58 generally provides a place to store computer code and data that are used by the computer system 50. By way of example, the memory block 58 may include Read-Only Memory (ROM), Random-Access Memory (RAM), hard disk drive and/or the like. The information could also reside on a removable storage medium and loaded or installed onto the computer system 50 when needed. Removable storage mediums include, for example, CD-ROM, PC-CARD, memory card, floppy disk, magnetic tape, and a network component.

[0060] The computer system 50 also includes a display device 68 that is operatively coupled to the processor 56. The display device 68 may be a liquid crystal display (LCD) (e.g., active matrix, passive matrix and the like). Alternatively, the display device 68 may be a monitor such as a monochrome display, color graphics adapter (CGA) display, enhanced graphics adapter (EGA) display, variable-graphics-array (VGA) display, super VGA display, cathode ray tube (CRT), and the like. The display device may also correspond to a plasma display or a display implemented with electronic inks.

[0061] The display device 68 is generally configured to display a graphical user interface (GUI) 69 that provides an easy to use interface between a user of the computer system and the operating system or application running thereon. Generally speaking, the GUI 69 represents, programs, files and operational options with graphical images. The graphical images may include windows, fields, dialog boxes, menus, icons, buttons, cursors, scroll bars, etc. Such images may be arranged in predefined layouts, or may be created dynamically to serve the specific actions being taken by a user. During operation, the user can select and activate various graphical images in order to initiate functions and tasks associated therewith. By way of example, a user may select a button that opens, closes, minimizes, or maximizes a window, or an icon that launches a particular program. The GUI 69 can additionally or alternatively display information, such as non interactive text and graphics, for the user on the display device 68.